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Spring Convention 2011

It was great to see many of you at the EGSA Spring Convention in New Orleans. If you were fortunate enough to have attended, you had the opportunity to see first-hand the interesting and informative presentations offered by our guest speakers; share in honoring EGSA members for their contributions to the Association; welcome 60 new member firms and 36 first-time attendees and enjoy all of the fun, food and excitement that have made New Orleans famous.

The Convention kicked off with a keynote address by Andy Karsner, former U.S. Assistant Secretary for Energy Efficiency and Renewable Energy. Mr. Karsner gave an informative and insightful keynote on the need for the public and private sectors to work together, in a comprehensive way, to meet environmental and economic goals. Attendee's interest in this topic was evident as Mr. Karsner continued his Q&A session in the hallway, during a scheduled break and following his presentation. Our other guest speakers, in keeping with this year's theme "Cleaning Up the Air: The Future of Energy," gave interesting and informative presentations on both Green Technologies and RICE NESHAP regulations.

With New Orleans playing host to our Convention, Mike Park from the U.S. Army Corps of Engineers gave a particularly topical session on the Storm Damage Risk Reduction System being implemented since Hurricane Katrina, a very impressive anti-flooding project.

We welcomed new leadership for two of our EGSA Committees, Chairman, Steve Evans of the Green Committee and Todd Lathrop, Chairman of the Codes & Standards Surveillance Committee. I was very pleased to see the turnout for the committee meetings. Many great ideas came out of the meetings including a theme for our Fall Convention in Baltimore, "Using Technology to Bridge the Generation Gap." Your participation is proof-positive that we all benefit from the suggestions and insights offered when members get involved in their Association.

At the Awards Banquet I had the honor of presenting awards to three of our members. Andy Ulavege received The William Timmler Award for his most recent work leading the Education Committee through a very active time, first as Secretary and then as Chairman. Former EGSA President (2008) and two time board member, Warner Bauer received the Leroy H. Carpenter Award for his long and outstanding service to the Association. Jim Wright's dedication throughout the years and undying commitment to EGSA has been invaluable and has influenced the Association's direction and focus. In recognition of his commitment, I had the privilege of presenting Jim with The President's Award. Thank you again gentlemen for your contributions to our Association throughout the years.

The Field Service Etiquette Roundtable, moderated by Leo LeBlanc, offered valuable insight and advice on this important and often overlooked subject. Attendees likewise benefitted from some of the best, high-energy networking thanks to the presence of some 230 attendees, including 36 first-timers.

There were so many highlights … the weather was perfect, the food was amazing, the vibrant, Mardi Gras atmosphere was enjoyed by all and the fishing and golf tournaments were second-to-none! Most attendees count this year's convention as one of EGSA's best ever. Thank you New Orleans for hosting a great Convention! Did I mention a lot of big redfish were caught?

If you didn't have the opportunity to join us at the Spring Convention, I encourage you to make plans to attend EGSA's Fall Conference September 18-20 in Baltimore, Maryland. This year's Conference promises to be three days packed with learning, growing, networking, and having fun. Even so, it won't be the same without you, so please make plans to join us. ■

George Rowley
EGSA Director
of Education
G.Rowley@EGSA.org

TRANSITIONS – Good Luck, Andy!

Many of you know that Andy Ulavege retired effective April 1. We wish Andy all the best in his retirement and hope that he finds a way to satisfy his passion for golf while coping with the cold winters of Central Illinois.

Andy has left a distinct impression on EGSA. In addition to serving as an EGSA Director, Andy has been actively involved in EGSA and has been a member of the Education Committee for many years. In January 2009 he assumed responsibility to serve as its Chairman. In addition to the many on-going projects the committee has responsibility to oversee and monitor, we engaged in two major and important initiatives during Andy's tenure: all committee members had several opportunities to contribute to the EGSA Strategic Plan and, last Spring, we formed the On-Line Learning Committee that is determining if EGSA should become involved in e-Learning.

Fortunately, the Education Committee is a large, stable committee with many talented and dedicated members and its new leadership team is prepared to accept the challenges at hand and continue to make progress. Dennis Pearson (Woodward) has assumed the position of Chairman, Ben Pierson (Diesel Radiator Company) has been elevated from Secretary to Vice Chair, and Greg Walters (Hotstart) has accepted the responsibilities of Secretary.

Technician Certification (Marketing) Update

Our First Step to Target End-Users – the National Facilities Management and Technology Conference & Expo (NFMT) – Some time ago we decided that a marketing focus on End-Users was critical to the success of the Certification Program. Of course, success at targeting end-users will also be a significant benefit to EGSA. As mentioned in my last column, EGSA and the Trade Press Media Group recently agreed to become partners and through an annual Power Source Pavilion at NFMT, will provide the latest information on the advances and effectiveness of onsite power. NFMT attendees are building owners and managers and vendors that provide facility management equipment and services.

With nearly 450 trade show exhibitors and more than 120 educational sessions, NFMT is the country's largest and most robust event dedicated to professionals responsible for the management, operations, maintenance, design and construction of commercial and institutional buildings. Conference sessions focused on sustainability, energy conservation, leadership, staff development, strategy, technology, security issues and more. NFMT Conference & Expo management announced a record-breaking audience of 5,118 commercial and institutional facilities professionals during its three-day run in Baltimore, March 15-17, 2011.

EGSA will debut the Power Source Pavilion in March 2012. An EGSA representative attended this year's NMFT to begin arranging for member participation in the 2012 Pavilion and to educate attendees and exhibitors about on-site power and EGSA. Beginning next year, the Power Source Pavilion and educational sessions will provide facility professionals with exclusive access to on-site power solutions and key power strategies.

On-Line Learning Update

Implementation of an EGSA e-Learning program will be an expensive proposition and we need to be very sure that EGSA will experience a reasonable return on its investment and that the program will be self-sustaining. To ensure that these conditions are met, members of the On-Line Learning Committee have encountered a very steep learning curve to grasp and fully understand on-line learning and its possible applicability to EGSA. We are pleased to report that we have made excellent progress and have identified a number of critical issues and key questions that need to be addressed before recommendations can be developed.

In addition to doing market research and resolving staff and resource issues, most of the critical issues and key questions relate to the determining which Learning Management System (LMS) to use. Representing the heart and soul of an e-Learning program, the LMS enables people to register, pay for and take courses on-line. The LMS offers testing, generates progress reports, issue certificates of completion or CEUs and keeps track of an individual's e-Learning history with EGSA. Decisions concerning which LMS to use will need to be determined prior to making recommendations on which vendor to use for our e-Learning program.

The committee plans to present recommendations to the Education Committee prior to the Fall Convention. If the Education Committee approves them, the recommendations will be forwarded to the Board of Directors for its consideration at the September meeting.

If you have questions or comments about EGSA's education programs please contact George Rowley, the Director of Education, at ***g.rowley@egsa.org*** *or by phone at 561-237-5557.* ■

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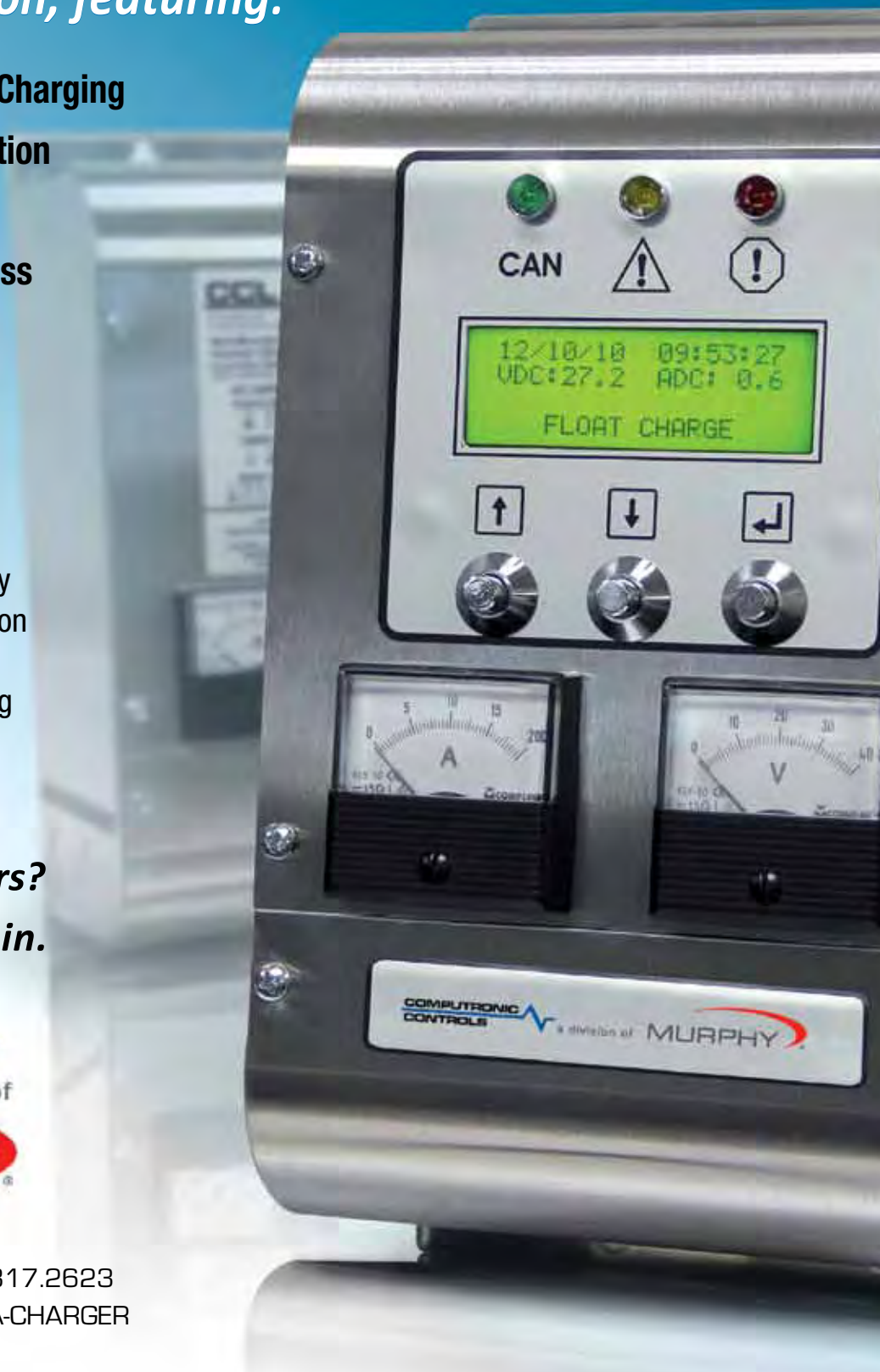

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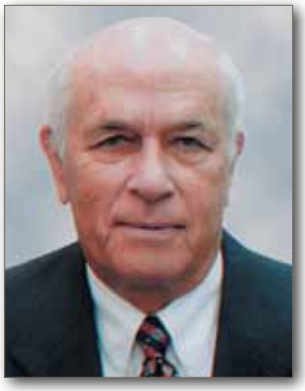

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Spring Convention Brings Attendees Up to Date

The March Convention was another great success. The participants at the Codes and Standards meeting were brought up to date on items including IEEE 1547, NFPA 99, 110 and 111, the status of the ICC Building Code and its provisions of Seismic Requirements and other items of interest.

A new subject being pursued via webinars is a Small Engine Task Group examining UL Standards in an attempt to make them more harmonious. The Standards involved are UL 558 – *Industrial Trucks, Internal Combustion Engine Powered;* UL 1248 – *Engine-Generator Assemblies for use in Recreational Vehicles*; UL 1602 – *Gasoline-Engine-Powered, Rigid-Cutting-Member Edgers and Edger-Trimmers;* UL 1776 – *High-Pressure Cleaning Machines;* UL 2200 – *Stationary Engine-Generator Assemblies; and UL 2201 – Portable Engine-Generator Assemblies.* There are great differences in the size of an engine used in UL 1602 and UL 2200 and so the committee has limited the discussion to engines below 30 kW. So far there have been 2 webinars of 2 hours each. (The next webinar, at the participants' request, will be 1½ hours in length.) We began the first session by determining how to proceed with the 216 page summary of the standards. Our goal was to make the wording as consistent as possible across the 6 standards while ensuring that any changes made would not require retesting on products previously tested and approved by UL. A broad summary of the topics examined are: Fuel Tanks, Fuel Systems, Exhaust Systems, Batteries, Enclosures, Electrical Systems, Testing and finally Miscellaneous Requirements concerning Construction. In the second session we were able to complete review of 3 pages concerning Fuel Tanks. In the review of those 3 pages we determined that, due to design considerations, we would not be able to be 100 percent consistent.

The National Fire Protection Association (NFPA) is now offering four methods of training on their codes: Seminars, On-Site, Self-Guided and Webinars. For more information, visit *nfpa-training.org.*

IEC 61709 ed. 2.0 Electric components – Reliability – Reference conditions for failure rates and stress model for conversion came up for a vote by the US Technical Committee. I usually do not like these types of standards as I feel they should be, at best, a Recommended Practice. In this case at the urging of the US Technical Advisor, I voted for the acceptance of this new edition.

Some recent UL changes proposed:

UL 2200 Ed 1: *Standard for Safety for Stationary Engine-Generator Assemblies* - Revision to the Dielectric Voltage Withstand test.

UL 2201 Ed 1: *RV/Portable Engine-Generator Assemblies* – Revise the requirements for GFCI protection as a result of allowing floating-neutral generators in the standard. This also led to changes in the bonding requirements and requires separate marking requirements for bonded-neutral and floating-neutral generators.

There will be a new version of ISO 8178-4 *Reciprocating internal combustion engines – Exhaust emission measurement – Part 4: Steady state test cycles for different engine applications.* At the request of Japan they are adding section 8.9 "Test cycle type i. Transport Refrigeration Unit" and Section 9.4 "Two speed engines". ■

Important Note

EGSA's data consulting firm has provided a revision to the Quarterly Generator Shipment Survey for the Third Quarter ending September 30, 2010 that is available at *EGSA.org.* The revision has corrected numbers for the below 30 kW ratings under Domestic North American Shipments.

The new RUSSELECTRIC 30-CYCLE TRANSFER SWITCHES...

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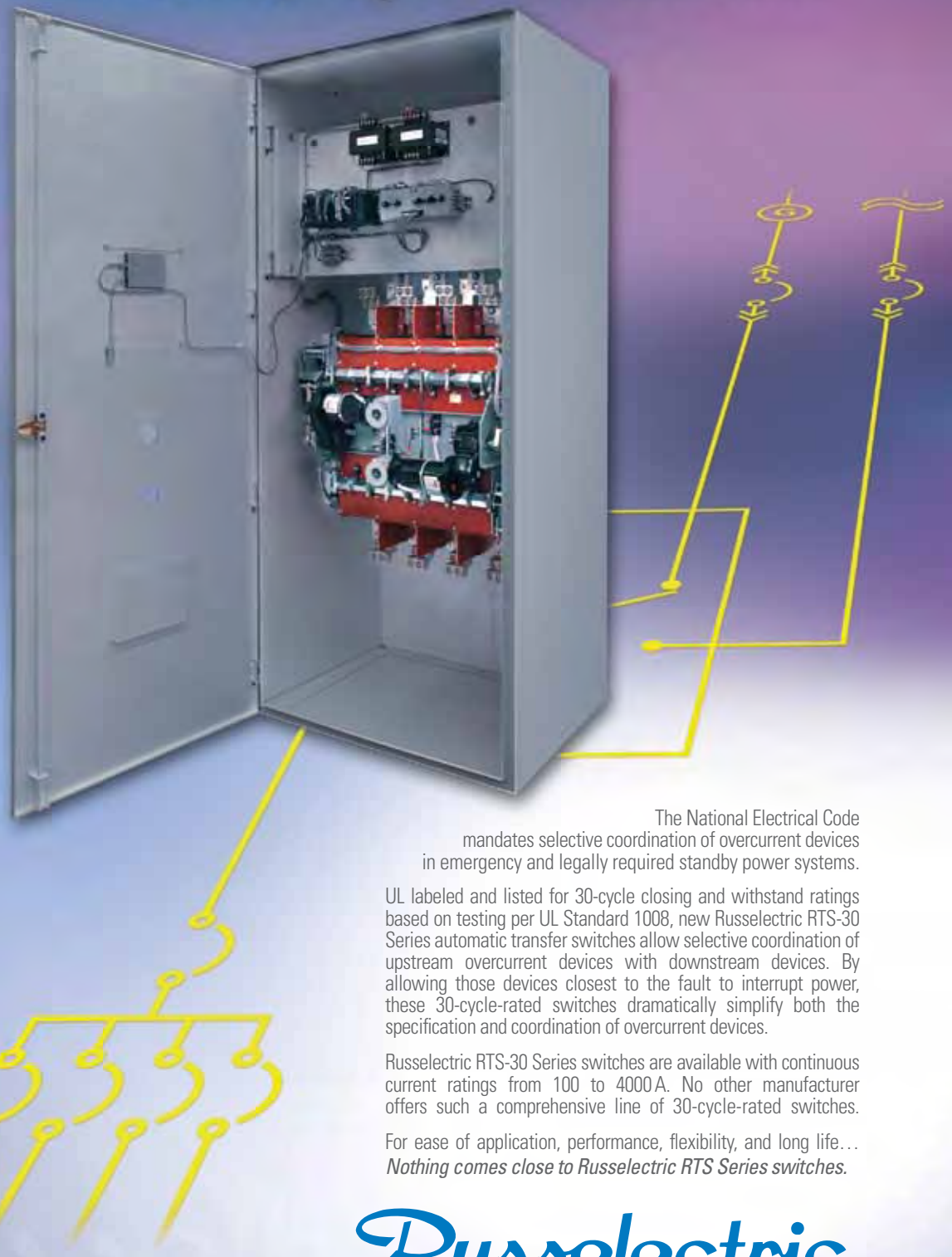

The National Electrical Code mandates selective coordination of overcurrent devices in emergency and legally required standby power systems.

UL labeled and listed for 30-cycle closing and withstand ratings based on testing per UL Standard 1008, new Russelectric RTS-30 Series automatic transfer switches allow selective coordination of upstream overcurrent devices with downstream devices. By allowing those devices closest to the fault to interrupt power, these 30-cycle-rated switches dramatically simplify both the specification and coordination of overcurrent devices.

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Tuning Your Regulators so you are not...
Unstable at Any Speed

By: Steve Evans, CEO/General Manager of DEIF North American

Regulators 101

The first speed regulators were the spinning ball type: if the speed dropped, the gravity would cause the balls to drop and open the valve, speeding up the generator. Conversely, if the load decreased and the speed increased, the centrifugal force on the spinning balls would cause them to raise, closing the valve.

Controls have come a long way since then! This white paper will discuss modern micro processor controlled closed-loop regulators, explain the basic functions, and hopefully help you understand how they work so you can tune them for maximum system performance. Incorrectly tuned regulators could result in sags, surges, instability, or even forced outages.

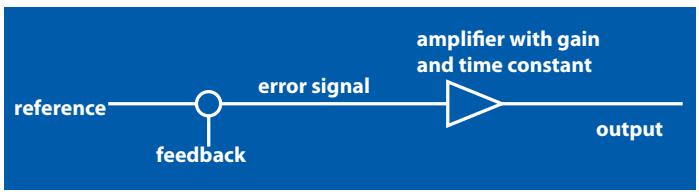
First, let's look at some common terms.

- Setpoint or reference is the desired speed. Normally about 900, 1800 or 3600 for 60Hz or 750, 1500, or 3000 for 50Hz, this will vary slightly when gensets are paralleled as load shifts or the utility Hz changes. Island or Standby mode regulators will do their best to maintain the setpoint. But when paralleled the controller will make fine adjustments to the setpoint to maintain kW or Hz.
- Feedback is an analog signal proportional to the actual speed the generator is turning. Most commonly used device is a magnetic pick up or MPU. The frequency of the voltage generated by the belt-driven battery-charging alternator ('W' terminal) or the frequency of the shaft-driven main power generator are (60Hz or 50Hz) also very common.
- Proportional regulator is another way to say straight gain regulator. The difference between the feedback and the setpoint is multiplied times a fixed number to get an output.
- Integral function is a way to reduce the error between the setpoint and the feedback. It also helps dampen out oscillations. Gain is integrated up over time.
- Differential function comes into play during transient conditions. This takes more computational power, thus has not been available on less expensive or older processor regulators.
- Error signal. The difference between the setpoint and the feedback.
- Amplifier. The error signal is fed into the amplifier, the proportional gain, the integral gain, and the differential gain is applied and the amplifier derives the output.
- Output. The output from the regulator becomes the speed trim or voltage trim adjustments to the speed governor or voltage regulator.
- Natural resonant frequency. The frequency any system mechanical or electrical will vibrate or oscillate. Everything has a natural resonant frequency. The most obvious are simple items like a tuning fork or a glass half full of water. Probably the most famous was the collapse of the Tacoma Narrows Bridge in Washington on November 7, 1940 due to wind starting the bridge in its natural resonant frequency. Search it on the internet and you can see some very interesting videos.

The genset startup engineer needs to be very good at setting up regulators! The microprocessor has made even the most complex regulators very cost effective, so the modern paralleling controller could have several:

1. Speed regulator when the gen breaker is open or in standby or island mode.
2. Speed regulator when close to sync speed.
3. Phase angle regulator between gen volts and bus volts when synchronizing.
4. Speed / kW regulator when paralleled.
5. Load sharing regulators: kW and KVAR.
6. Voltage regulator when the gen breaker is open or in standby or island mode.
7. KVAR/PF regulator when paralleled.

Every regulator will have a setpoint or reference, feedback, error signal, amplifier, and output. If it has only proportional gain, it will often be called a P regulator. If it has proportional and integral gains, it will often be called a PI regulator. PID refers to a regulator with all three functions, proportional (P), integral (I), and differential (D).



How do the three functions work? Sometimes it is best to explain by example. Let's look at a simple speed regulator you use very often – the cruise control in your car – and start with a simple straight gain or P regulator.

When you hit the set button, let's say at 60 mph, the current speed is copied into the setpoint. Then why does the speed drop to 58 mph? Let's assume you are on a level road and it takes 20% throttle (remember, throttle is torque, not speed!) to maintain that speed. If the P gain is 10, it will take an error of 2 (2x10=20%) to maintain that speed. To get an error of 2, the speed feedback will drop to 58. It will be stable and steady at a constant error of 2. While this error of 2 may not be a big deal in your car, it could be in some closed loop systems. Car cruise controls need to be stable and the dynamics of the car change over time, so the manufacturer would not necessarily optimize

the response of a simple cruise control. It is a good example, though, so let's keep using this example as we look at what it would take to optimize this speed regulator.

As you start up a hill, the speed drops off, say to 55 mph. The error gets larger (5), and the throttle would increase torque to 5x10 = 50% in an attempt to maintain the setpoint speed or as close as possible.

Top the hill and now the throttle is more than is needed to maintain the speed setpoint. The error goes to zero or even negative – overshoot – and the throttle is reduced, dropping the speed.

So how do we get rid of that steady state error of 2? If the gain is raised to 40 and remembering that it needs 20% throttle/torque to maintain speed on level road, the error would be ½ x 40 = 20, thus the speed on the level road would be 59 ½. So with the speed closer to the setpoint, is this a better regulator? Maybe in some conditions, but as soon at the car started up the hill, the cruise control would call for 100% throttle with only a 2 ½ mph difference in speed. Full throttle, speed overshoot, zero throttle, speed undershoot, full throttle…an unstable or even oscillatory system. So busting one myth: too much gain in an only-P regulator can result in an unstable system.

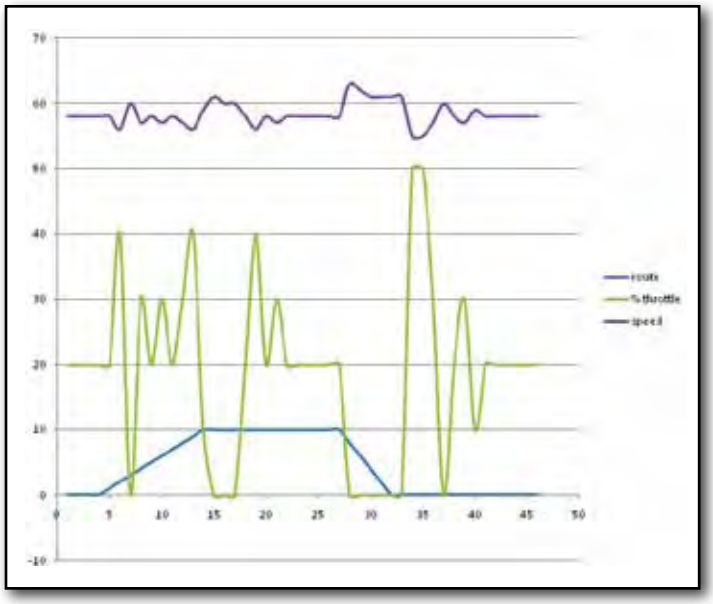
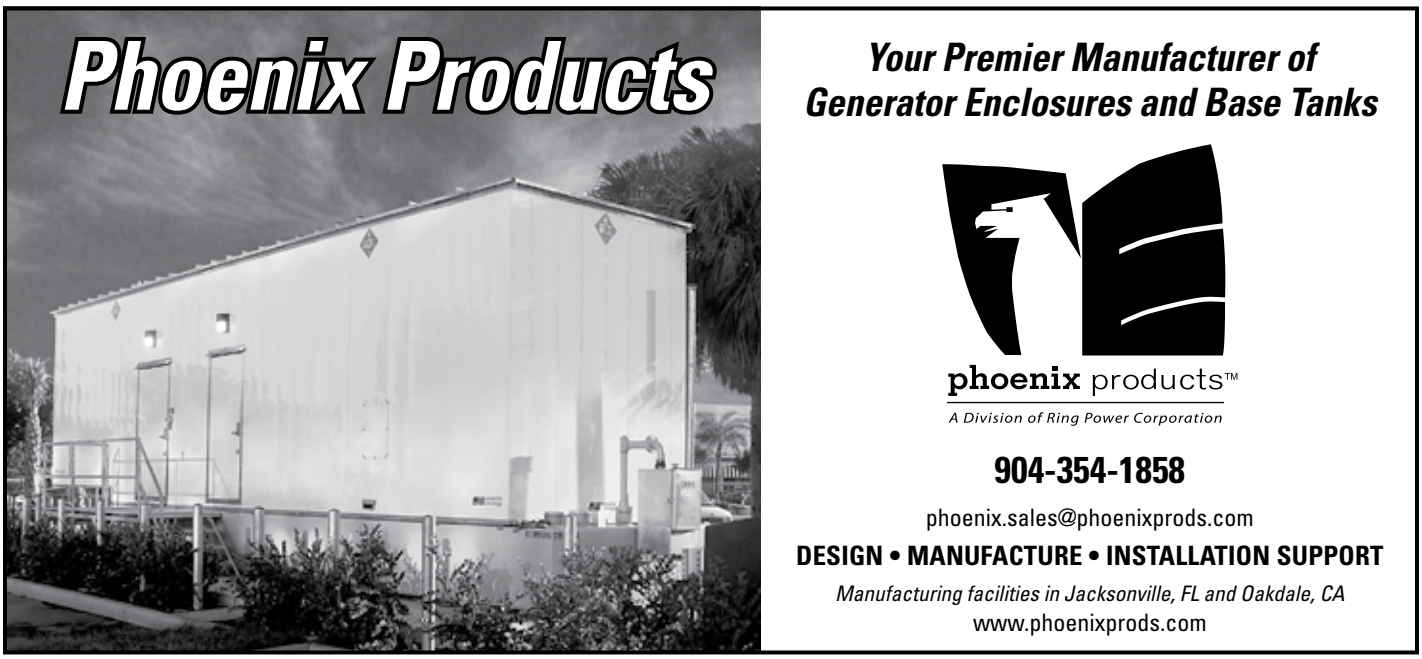


Figure 1. This graph shows the relationship between the speed and throttle as the car travels up the hill and back down with cruise control set on 60 mph with a steady state error of 2 mph. Note the overshooot at each transition and the response of this straight gain regulator.

Now let's add the integrating function. Going back to the gain of 10 on the P, remember the steady state speed on level land was 58. If we increased the gain it became a more accurate regulator, but it eventually became unstable. What if we could increase the gain during steady state conditions, yet reduce it during transient situations? This is what an integrator does: it gradually decreases the error down – theoretically to zero – over a period of time. For the error to get to zero, this means that the setpoint equals the feedback and the gain must be infinite. Essentially the I gain sets the maximum contribution from the integrator function and the time constant sets the rate at which the integration takes place. This time period is also called the time constant and it must be set as close to the natural resonant frequency as possible or - rule of thumb - at least 3 times slower or faster than the natural resonant frequency or the two will interact, possibly being unstable.

What would happen if you were cruising along on a flat level road and suddenly when up a very steep hill? We already discussed that the P function needs to see a difference in speed before it reacts. The I function works over time, so it has a very little contribution during transient conditions. If you were driving without the cruise control, you would see the hill coming and could add some throttle before the hill started, anticipating the sag in speed that will happen as you ascend the hill. But a regulator cannot anticipate so the third function, the differentiator, comes into play during transient conditions only. The bigger the rate of change – not the size of the change, but the rate of the change – the more contribution from the D function – both adding and subtracting to the output depending on the



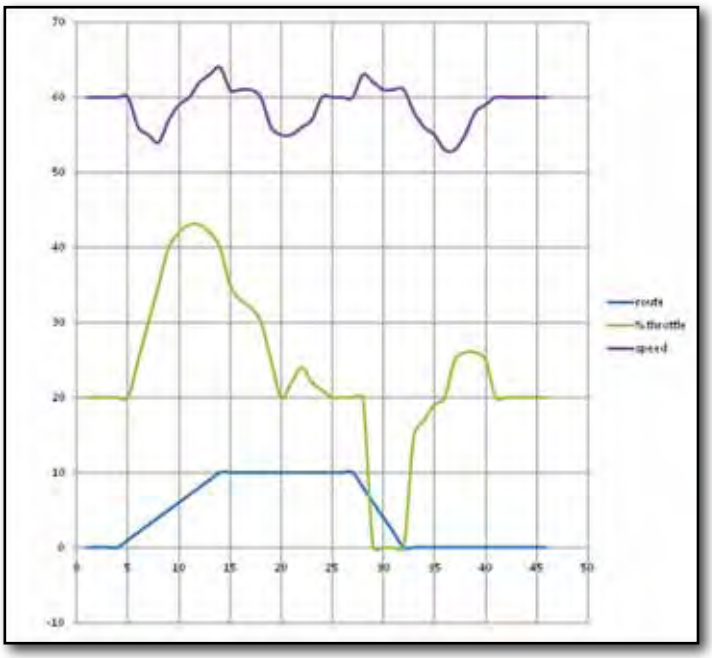


Figure 2. In a correctly tuned regulator with P and I, responding to the same load characteristics, the overshoot is reduced. Cruise controls cannot be tuned perfectly due to the variety of operating conditions and they rarely have I so this is theoretical regulator, but better than Figure 1. Note that the steady state error is gone.

sign or direction of the disturbance. You can easily see how D can contribute to instability, but it really does help when impact loading a generator, for one example. Again there is a gain and time constant: the gain is the amount of the D function and the time constant is the duration of the pulse.

So in summary, the P sets the overall system gain and response, the I reduces the error in steady state conditions and can allow a higher P in steady state conditions, and D comes into play to offset some of the I and help in drastic situations. Confusing? Oh yea! Let's look at some examples of what to do and what not to do while setting up your regulators.

First be sure you know which regulator is active when. In most gensets, the governor is the first or inner most speed regulator loop. Paralleling controllers actually "trim" or slightly add to or subtract from the governors speed reference to achieve synchronization or, once the breaker is closed, regulating kW or speed (in island or stand by modes). You don't want to be adjusting the kW regulator when the breaker is open, for example.

Watch out for "regulator interaction." Did you ever try to talk to someone out your window of a moving car? OK, now we use cell phones, but before then we would roll (yea, back then they were not even power windows!) down the windows and talk to the car next to us. If the cars were both going fast, the two drivers would try to match each other's speed and overshoot would always happen. Two 'regulators" – drivers – were trying to regulate the position between the cars. Driver X would speed up, by that time Diver Y would slow down, then X would slow down while Y sped up…overshoot that was almost comical. All you had to do was set the cruise in one car, then the other could match you just fine. Regulator interaction – two or more regulators fighting each other. Ever try to parallel two unloaded generators? Same result, albeit slightly different reason.

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Tune the inner loops first, then work your way out. The inner loops need to be faster than the outer loops. Start with the governor as a speed regulator, then the controller as a speed regulator in island or standby mode, then the synchronization regulators (speed, then phase angle and voltage), and finally the kW, KVAR and PF regulators.

You can measure the speed of the regulator in radians as 1/(time to 63%). The "time to 63%" is the time it takes for the regulator to correct 63% of the error signal. This will take some sophisticated equipment, but in the worst cases it has to be done. You apply a small step change in speed, say from 1780 to 1800 RPM. The "time to 63%" would be the time it takes for the speed to change from 1780 to 1792 RPM. [1780 + (.63x20) = 1792]. Ideally you would want to tune your next loop to be either at this same speed in radians or 3 times slower or faster. In between this range and you run the risk of regulator interaction and/or unstable operation. But this is too much theory and work for regulators on most gensets!

Practically, turn up the P gain while applying a small step in the reference. The 'reference' could be the speed or kW or volts depending on which regulator you are tuning. If it goes unstable, turn it down. A little overshoot is not necessarily bad as long as that does not cause a disturbance in the next loop. Another rule of thumb: only 3 'bumps" – oscillations – max in the overshoot. Any more and you risk being critically under dampened or oscillatory: continuously undershooting and overshooting.

Then slowly add I, again while stepping the reference. Older regulators require you to set both the gain and the integration term, but leave it up to you to maintain the time constant or ratio between them. Newer regulators ("pure integrators") will take care of the time constant for you and require only one adjustment for the integration regulator. Watch for oscillations, turning it down to keep it stable. If you are not stepping the system, changing the I will not appear to make any difference. This is the most common mistake. Everyone thinks 'more is better,' so turning up the I will make the system better. Not necessarily true!

What would happen if you added I gain when running in a steady state condition? Probably very little until you went too far! Only add I gain when stepping the regulator. Under steady state conditions you will not see much difference when increasing I, but during transient conditions too much I gain will make the system unstable. Now add some I time constant, again while stepping the regulator, starting small and working your way up slowly if you need to. When would you want to add more? If the system becomes oscillatory, increasing the time constant can dampen those out. But too much time constant with too much gain can produce a very slow yet still critically under dampened system…very slow oscillations that can actually grow over time.

Lastly add D if needed. Many systems don't need D terms if the application is a very simple one. But if the system does not handle impact loads well, adding some D will probably help. Be careful not to add too much—unlike adding too much I, if you add too much D you will know it right away! What are you looking for as an indicator you need to add D? Counter acting the effects of a block load, for one example. Adding D allows you to

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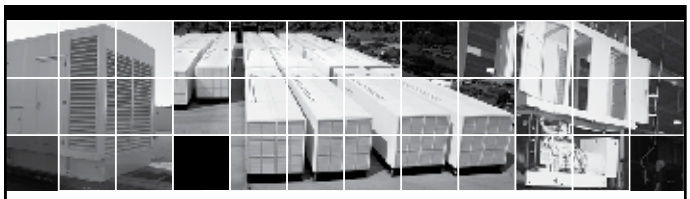

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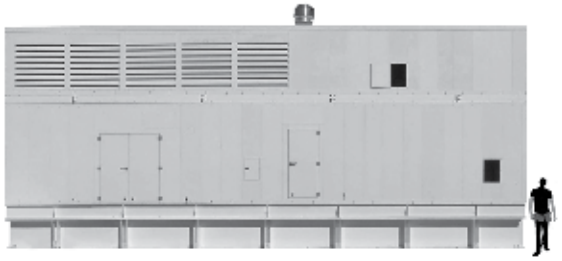

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add more P and I because D will offset the overshoot.

This discussion would not be complete without lecture about looking at the complete system. Water in the fuel or grid fluctuations or clogged air filters or clogged particulate filters can cause surges in speed and torque, looking very much like regulator instability. Excessive P or I in the governor can cause problems with the paralleling controller. Swings in KVAR from an unstable voltage regulator can cause kW to jump. If a system worked fine a week ago and now it is surging, it is probably NOT the regulators! Did someone that did not read this article play with the settings? Gensets are complex with many interactive subsystems. You will find it beneficial to consider the entire system as you tune the regulators.

Now you can see why setting up regulators is really more of an art form than a science! You can make it a science if you want to – or need to –but in almost all cases knowing what each adjustment does will enable you to achieve optimum performance out of your closed loop regulator.

About the Author

Steve Evans is CEO/General Manager of DEIF's North American operation based in Fort Collins, CO and one of the volunteer instructors with EGSA's On-Site Power School. He has been involved in the transmission, protection, generation, distribution, conversion, and control of electrical power since 1981. Contact him at *see@deif.com* ■

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The"Big Easy"Hosts EGSA's 2011 Spring Convention

2011 EGSA President John Kelly, Jr.

2011 Communications and Convention Committee Chairman Ed Murphy

The Electrical Generating Systems Association (EGSA) held its 46th Annual Spring Convention at the Astor Crowne Plaza in New Orleans, LA, March 13 - 15, 2011. Convention Educational sessions were focused on this year's theme, "Cleaning Up the Air: The Future of Energy."

Keynote

The Convention kicked off on Monday with a keynote presentation by the former U.S. Assistant Secretary of Energy and Chairman and CEO of Manifest Energy, Andy Karsner. Mr. Karsner discussed what is required from the private and public sectors to heal our wounded environment and end our addiction to oil. He also discussed what the administration must do to solve the energy and environmental threats and how the private and public sectors must work together in a new, comprehensive way to blend environmental and economic goals.

Presentations

The Environmental Protection Agency's Melanie King discussed NESHAP for Stationary Reciprocating Internal Combustion Engines. Ms. King presented an overview of the new regulations, the applicability of the rules, the emissions standards, compliance requirements, deadlines and the estimated impact on owners/operators.

Ralph Avallone, President and CEO of the National and International Green Energy Council, discussed the integration of Green Technology into the existing energy sector and dis-

First-time attendees with EGSA President John Kelly, Jr.

cussed the political environment that is required to successfully make that integration happen.

Mike Park from the U.S. Army Corps of Engineers gave a particularly topical presentation on the Storm Damage Risk Reduction System being implemented in New Orleans in the aftermath of Hurricane Katrina, the largest project undertaken in the Corps' history.

Field Service Etiquette Roundtable

The Field Service Etiquette Roundtable, moderated by Leo LeBlanc, was well attended. Many helpful tips and suggestions were offered. A panel of Power Operation Managers discussed the importance of properly training technicians to interact with the customer/end user in the field while maintaining a professional demeanor.

EGSA Exhibitor Showcase

In addition to offering educational sessions, EGSA's Spring Convention included the highly successful Exhibitor Showcase. The showcase allowed for a more traditional, formal dialogue between On-Site Power Manufacturers, attending Distributor/Dealers and Manufacturer Representatives.

Committee Meetings

The Spring Convention's scheduled EGSA Committee Meetings allowed for Delegate's voices to be heard on topics important to both our Association and the On-Site Power Industry.

Social Events

In addition to the Business and Educational events, several social venues were scheduled. The President's Reception, Awards Banquet, Golf and Fishing Tournaments along with the Closing Reception allowed for a chance to relax and enjoy the company of fellow members and industry professionals.

EGSA 2011 Fall Technical & Marketing Conference

Mark your calendar, the EGSA 2011 all Technical & Marketing Conference will be held September 18-20, 2011 in Baltimore, MD. Information and registration details will be available at EGSA.org in the coming weeks. ■

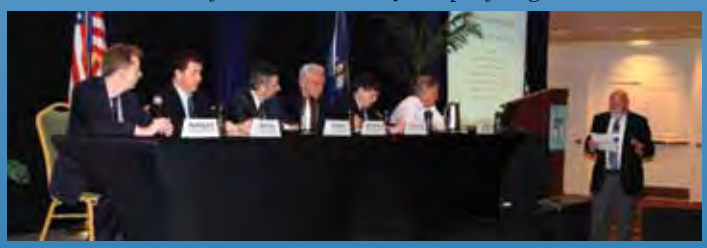
EGSA President John Kelly, Jr. greets keynote speaker Andy Karsner.

Karsner responds to Bob Hafich, Emergency Systems Service Co. during Q&A.

Melanie King

Ralph Avallone

Mike Park from the U.S. Army Corps of Engineers.



Leo LeBlanc moderates the Field Service Etiquette Round Table.

2011 EGSA President John Kelly, Jr. presents Ron Hartzel of Eaton Corporation with the EGSA Presidential Portrait in recognition of Ron's service as EGSA President in 2010.

Jim Wright from Marathon Electric Manufacturing Corportaion received the President's Award in recognition of 28 years of service to EGSA as a school instructor. Wright is retiring from Marathon as of June 30, 2011.

Andy Ulavege from Enercon Engineering was presented The Timmler Award by EGSA President John Kelly, Jr. for his outstanding service to EGSA as the Education Committee's chairman. Andy retired from Enercon in April of this year.

Warner Bauer of Kickham Boiler and Engineering Inc. received The Leroy H. Carpenter Award to honor his long and outstanding service to the EGSA thoughout the years.

About EGSA

The Electrical Generating Systems Association (EGSA) is an international trade association made up of more than 800 companies throughout the United States and around the world that make, sell and distribute On-Site Power generation and related equipment. Headquartered in Boca Raton, Florida, EGSA is the world's largest organization dedicated to On-Site Power Generation.

NEW EGSA MEMBERS

MF=Manufacturer DD=Distributor/Dealer CI=Contractor/Integrator MR=Manufacturers Rep
EM=Energy Management Co. AA=Trade Publication AB=Trade Association AC=Engineer
AD=End-User AE=Service AG=Educational Institution AR=Retiree AF=Student

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U C Irvine Medical Center . . . . . AD
Orange, CA
J. R. Allen, Physical Plant Specialist
UCIMC is a hospital complex consisting of 28 bldgs, 27 OR's and having 9.9 MW of emergency generators, which I test and maintain. I am a student at Santiago Canyon College in Orange and expect to graduate in 2012 with an AA in water utility science.

Derrick Grigsby, Jr. . . . . .AF
Cincinnati, OH

Application for Membership

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Under the leadership of its Board of Directors and operating through its various committees and staff, EGSA strives to educate, provide networking opportunities and share relevant knowledge and trends with industry professionals including manufacturers, distributor/dealers, engineers, manufacturer representatives, contractor/integrators and others serving On-Site Power consumers.

1. Contact Information

Please type or print all information in upper and lower case (NOT ALL CAPS!)

Company _____

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Phone _____ FAX _____

Official Representative _____ Title _____

Representative's E-Mail _____ Company's Web Address _____

How did you hear about EGSA? ❑ Web site ❑ *Powerline* magazine ❑ Colleague ❑ POWER-GEN ❑ Other _____

Why are you joining EGSA? ❑ Certification Program ❑ CEU Program ❑ Power Schools ❑ Buying Guide Listing ❑ Other _____

2. Member Classification

Read the Membership classifications below and check the box that describes your firm's classification.

I. FULL MEMBERSHIP

❑ MF **Manufacturer Membership**
Any individual, sole proprietor, partnership or corporation seeking membership must apply for a Full Membership as a manufacturer if they meet one or more of the following criteria:
1. They manufacture prime movers for power generation.
2. They manufacture generators or other power conversion devices producing electricity.
3. They manufacture switchgear or electrical control devices.
4. They manufacture or assemble generator sets, UPS systems, solar power, hydropower, geothermal, or any other power production or conversion system including related components or accessories for national or regional distribution.
5. They are a wholly owned subsidiary of a firm that qualifies under rules one through four.

❑ DD **Distributor/Dealer Membership**
Any individual, sole proprietor, partnership or corporation actively engaged as a distributor or dealer for products listed under Manufacturer Membership may apply for Full Membership as a Distributor/Dealer. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.

❑ CI **Contractor/Integrator Membership**
Any individual, sole proprietor, partnership or corporation actively engaged as a Contractor or Equipment Integrator of products listed under Manufacturer Membership, not bound by brand, geographic territory or contractually obligated as a Distributor/Dealer of a specific product. These firms typically purchase products from a Distributor/Dealer, Manufacturer or Retailer, adding value through installation, product knowledge, relationships, unique services, etc., and then re-sell the resulting product to an end-user.

❑ MR **Manufacturer's Representative Membership**
Any individual, sole proprietor, partnership or corporation actively engaged in the representation of products listed under Manufacturer Membership may apply for Full Membership as a Manufacturer's Representative. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.

❑ EM **Energy Management Company Membership**
Any individual, sole proprietor, partnership or corporation engaged in energy management, including Energy Service Companies (ESCOs), Independent Power Producers (IPPs), Integrators, Aggregators, and other similar enterprises may apply for Full Membership as an Energy Management Company.

❑ **Associate Full Membership** *(mark appropriate category at right)*
Any individual, sole proprietor, academic institution, student, partnership or corporation meeting the requirements of Associate Regular Membership may apply for Full Membership at their option to enjoy the privileges of Full Membership, including the rights to vote and to serve on EGSA's Board of Directors. Initiation fees and annual dues will be assessed at the existing non-manufacturer Full Member rates.

II. ASSOCIATE REGULAR MEMBERSHIP

❑ AA **Trade Publication Membership**
Any trade publication dealing with the electrical generating systems industry or its suppliers may apply for Associate Membership–Trade Publications.

❑ AB **Trade Association Membership**
Any trade association made up of individual or company members sharing a common interest in the electrical generating systems industry may apply for Associate Membership–Allied Associations.

❑ AC **Engineer Membership**
Any consulting or specifying engineer may apply for Associate Membership–Engineer. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.

❑ AD **End-User Membership**
Any individual employee of a company who owns or operates electrical generating equipment and/or related switchgear or components, whose responsibility to his employer includes planning, design, installation, supervision, or service of such equipment may apply for Associate Membership–User. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.

❑ AE **Service Membership**
Any individual, organization or academic institution that offers services such as research, testing or repair to the electrical generating systems industry may apply for Associate Membership–Services. Membership may either be held in the individual's name or the organization's name under this classification. Individual companies whose employer or parent organization qualifies as a Full Member, as described in the Full Membership section, do not qualify for this category.

❑ AG **Educational Institution Membership**
Any postsecondary vocational-technical school or college offering on-site power generation-related instruction may apply for Associate Membership–Education Institution.

❑ AR **Retiree Membership**
Any individual who retires from a member company may apply for Associate Membership–Retired. This classification does not apply to any individual who is employed more than 20 hours per week.

❑ AF **Student Membership**
Any individual currently enrolled at an academic institution may apply for Associate Membership–Student.

Dues Schedule (Use for Section 3)

	Annual Dues	Initiation Fee	TOTAL
Manufacturer	$825	$200	$1025
Distributor/Dealer	$285	$100	$385
Contractor/Integrator	$285	$100	$385
Manufacturer's Representative	$285	$100	$385
Full Associate Member	$285	$100	$385
Energy Management Company	$200	$100	$300
Regular Associate Member	$200	$100	$300
Retiree Member	*Complimentary*	$0	$0
Student Member	*Complimentary*	$0	$0

NOTE: A FULL 12-MONTH DUES PAYMENT MUST BE RECEIVED WITH THIS APPLICATION. The Association's Membership Year is January 1 through December 31. Dues payments that extend beyond the first Membership Year will be applied to the second year's dues.

FULL PAYMENT MUST BE RECEIVED WITH APPLICATION.

3. Membership Dues (Please fill in the appropriate TOTAL amount from the above dues schedule.)

Membership Dues $_____

Membership Plaque (optional)** $ 49.95**

On-Site Power Reference Book (optional)** $ 125.00**

Florida Residents: Add 6% Sales Tax to ** items $_____

*Continental US Residents add $5 shipping/handing to**items.* $_____
Non Continental US Residents should call EGSA
*Headquarters for shipping charges for **items.* **TOTAL** $_____

4. Payment Method (Payable in US$ drawn on U.S. bank, U.S. Money Order, or American Express)

❑ Check #_____ Amount Due $ _____

❑ Money Order

❑ Mastercard ❑ Visa ❑ American Express

Card # _____ Exp. Date _____

Signature: _____

Print Name: _____

5. Products/Services

Please describe the nature of your business (50 words or less, NOT ALL CAPS). If you are a Manufacturer's Representative or Distributor/Dealer, please indicate which manufacturers you represent and/or distribute for; if you are a student, please provide the name and location of your school, your major and your anticipated graduation date:

_____

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Do you buy AND sell equipment? ❑ Yes ❑ No Do you manufacture packaged equipment? ❑ Yes ❑ No

Available Codes:

01 ---Batteries/Battery Chargers
02 ---Control/Annunciator Systems
29 ---Education
30 ---Emission Control Equipment
04 ---Enclosures, Generator Set
05 ---Engines, Diesel or Gas
06 ---Engines, Gas Turbine
07 ---Engine Starters/Starting Aids
08 ---Filters, Lube Oil, Fuel or Air
28 ---Fuel Cells
03 ---Fuel Tanks and Fuel Storage Systems
09 ---Generator Laminations
10 ---Generator Sets
11 ---Generators/Alternators
12 ---Governors
13 ---Heat Recovery Systems
14 ---Instruments and controls, including meters, gauges, relays, contactors, or switches
15 ---Load Banks
16 ---Motor Generator Sets
17 ---Radiator/Heat Exchangers
18 ---Relays, Protective or Synchronizing
19 ---Silencers/Exhaust Systems/Noise Abatement
20 ---Solenoids
21 ---Switchgear and Transfer Switches (Automatic or Manual), Bypass Isolation Switches, and/or Switchgear Panels
22 ---Trailers, Generator Set
23 ---Transformers
24 ---Uninterruptible Power Supplies
25 ---Vibration Isolators
26 ---Voltage Regulators
27 ---Wiring Devices or Receptacles

Enter codes here:

Products sold: _____

_____

Products rented: _____

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Products serviced: _____

_____

6. Sponsor(s)

A "Sponsor" is an EGSA Member who interested you in filling out this application. It is not mandatory that you have a sponsor for the Board to act favorably on this application; however, if a Member recommended that you consider membership, we request that individual's name and company name for our records.

Sponsor Name _____ Company Name _____

7. Official Representative's Authorization

Signature _____ Date _____

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2011 NFMT Conference & Exposition Draws 5,118 Commercial and Institutional Facility Managers from Around the Country

NFMT Conference & Expo draws record-breaking audience during its three-day run in Baltimore, March 15-17. Attendance grew to 5,118 commercial and institutional facilities professionals. This was the largest number of non-exhibitor attendees on record since the event launched in 2001.

With nearly 450 trade show exhibitors and more than 120 educational sessions, NFMT is the country's largest and most robust event dedicated to professionals responsible for the management, operations, maintenance, design and construction of commercial and institutional buildings. Conference sessions focused on sustainability, energy conservation, leadership, staff development, strategy, technology, security issues and more.

Exhibitors expressed enthusiasm about the large crowd in the exhibit hall. "Always a good show," said Ross Powell, Senior Sales Executive for TMA Systems. "This show pays for itself in the first two hours."

Ed O'Brien, Partner of SolarDock agreed, "At times, visitors were lined up three- and four-deep… We made many valuable connections, thanks to your group. And we fully expect new business as a result."

"Our record-breaking attendance and the subsequent demand for 2012 exhibit space demonstrates continued market confidence in this event," said NFMT president and co-owner Bob Wisniewski. "NFMT is widely recognized by attendees and exhibitors as the number one event connecting buyers and sellers in the non-residential facilities management industry," he said.

NFMT and the EGSA Unite to Launch 2012 Power Source Pavilion

New next year, NFMT and EGSA are uniting to launch the Power Source Pavilion along with a special educational track. The Power Source Pavilion and educational sessions will provide facility professionals with exclusive access to on-site power solutions and key power strategies including peak shaving, cogeneration, uninterruptible power supply, and alternative power sources such as wind, solar, and fuel cells.

"We are very excited about our partnership with NFMT," said Jalane Kellough, EGSA's Executive Director. "The new Power Source Pavilion at NFMT 2012 will provide significant value to the buyers and sellers of on-site power and empower attendees with information and connections that are invaluable."

NFMT 2012 will be held at the Baltimore Convention Center, March 13-15. ■

Andy Ulavege of Enercon Engineering Retires

With nearly 40 years under his belt in the On-Site Power industry, Andy Ulavege has decided to retire.

Andy received a Bachelor's Degree from Western Illinois University and began his career in On-Site power with Simplex in 1972. Prior to joining Enercon Andy worked at Whayne Supply Company and Ellingsworth. 1985 brought Andy to Enercon Engineering's sales department, where he has found a home since, most recently in the position of Regional Sales Manager.

Andy's relationship with EGSA spans the last 14 years. He has offered his time and energy to the Association as a member of the Board, along with holding the offices of Secretary and Chairman of the Education Committee. Additionally, Andy has served on the Pennwell "On-Site Power" committee for the last eight years. EGSA President John Kelly, recognized Andy at this year's Spring Convention by presenting the Timmler Award to him for his work with the Education Committee. Andy says that he will always cherish his friends at EGSA.

What does retirement hold for Andy? He is eager to spend time with his wife, his children and grandchildren. He is also looking forward to getting in a round of golf from time to time. Good luck Andy, your friends at EGSA wish you the best! ■

MTU ONSITE ENERGY:
Exceptional Power Generation Solutions

Another in Our Series of Profiles of EGSA Member Companies

MTU Onsite Energy is a relatively new name in the power generation market, but the company's roots go back to the dawn of the diesel engine in Germany, and its association with EGSA began with the group's inception in 1965. Today, MTU Onsite Energy offers a complete line of generator sets from 30 kW to 3,250 kW for both standby and prime power applications, and the company counts a continuous 45 years of membership in EGSA. With its nearly 60 years of experience in generator set packaging and more than a century in diesel engine manufacturing, the company has emerged as a premier provider of power generation solutions both in North America and around the world.

The history of the company has followed an interesting path that started in 1909, when Karl and Wilhelm Maybach and Count Ferdinand von Zeppelin founded an airship company in Germany. (See company history sidebar.) From that beginning and with company acquisitions on both sides of the Atlantic, the company known today as MTU Onsite Energy has a legacy of advanced engine design and manufacturing, plus more than a half-century of perfecting and packaging power generation systems.

Charter member of EGSA

MTU Onsite Energy has been an active participant in EGSA since 1965, when it became a charter member under the original auspices of Katolight Corporation. The company's Director of Sales, Al Prosser, served on the EGSA Board of Directors through 2010, as have several other MTU Onsite Energy employees, all of whom brought wide power generation expertise to the task.

"As a major power generation manufacturer, MTU Onsite Energy believes in the reciprocal benefits of an industry organization such as EGSA," says Prosser. MTU Onsite Energy is able to contribute our knowledge and experience, while in turn, our membership helps us keep abreast of technological developments, regulations, challenges and opportunities in the power industry. As a company, we attend EGSA events to network with customers and suppliers, and to take advantage of the education sessions that are offered."

MTU Onsite Energy manufactures generator sets and power systems for a wide variety of emergency standby and prime power applications. Its primary sales channel is a worldwide network of distributors, and end customers are mission-critical data centers, healthcare, government, communications and other standby and prime power users.

"MTU Onsite Energy's mission is to set the standard as a preferred partner for the best solutions in power generation,"

MTU ONSITE ENGINEERING IS...

...is a leading producer of diesel-powered generator sets from 30 kW to 3,250 kW and natural-gas-powered generator sets from 30 kW to 400 kW for standby, prime power and cogeneration applications. The company also provides automatic transfer switches, paralleling switchgear, controls and accessories for complete power system solutions.

MTU Onsite Energy Corp., a Tognum Group company based in Mankato, Minnesota, combines the expertise of Katolight and MTU Detroit Diesel Power Generation to meet the ever-increasing distributed power needs of customers in North America and around the world. MTU Onsite Energy Corp. is part of the Tognum Group's business unit, Onsite Energy and Components.

For more information, visit *www.mtu-online.com.*

Prosser says. "The business philosophy that drives us is one of providing our customers with power generation products of exceptional quality, efficiency and flexibility, while delivering customer support wherever and whenever it is needed."

Complete product line

MTU Onsite Energy manufactures diesel generator sets from 30 kW to 3,250 kW and gas generator sets from 30 kW to 400 kW. The generator sets are manufactured at the company's Mankato, Minnesota, facilities and many of the generator-drive engines are manufactured at the company's facility in Aiken, Georgia, that opened in 2010. Diesel generator sets from 230 kW to 3,250 kW are all powered by MTU diesel engines, known for their high specific power output, fast load acceptance, exceptional fuel economy and reliability.

The company's products are sold and serviced globally through a network of 103 authorized distributors in 178 countries, creating 1,030 points of contact throughout the world. With the recent economic challenges facing customers in North America, foreign markets have become even more important than in the past. The company believes that demand for its power generation products in foreign markets will continue to increase in the future.

Prosser says that the two most obvious overseas market opportunities are in China and India. "Both countries have enormous population bases, prospects for rapid economic expansion and a growing need for reliable electric power. With our global manufacturing capability and our global distribution and service network, MTU Onsite Energy is perfectly positioned to take advantage of these market opportunities," he says.

"The power generation business has a long product purchasing cycle," says Prosser, "and as a consequence, the global recession did not significantly impact our business during 2009. While the delayed impact of the ongoing credit crisis reduced our backlog of orders in the first quarter of 2010, the second half of 2010 turned out to be significantly better."

Environmental leadership

The ongoing green movement has allowed MTU Onsite Energy to take a leadership position in regards to emissions control on its complete line of engine-generator products, according to Prosser. "We are poised to help our customers comply with EPA Tier 4i regulations in 2011 and Tier 4 in 2014 with advanced products and aftertreatment strategies. And, by offering some of the most fuel-efficient generator-drive engines available, we are helping our customers reduce their overall carbon footprint," he says.

Prosser predicts that, in the future, there will be a steady move toward integrating more alternative energy sources such as solar, wind, biofuels and other renewables into the energy economy. However, he also believes there will always be a need for onsite power technologies to provide reliability for our electric supply.

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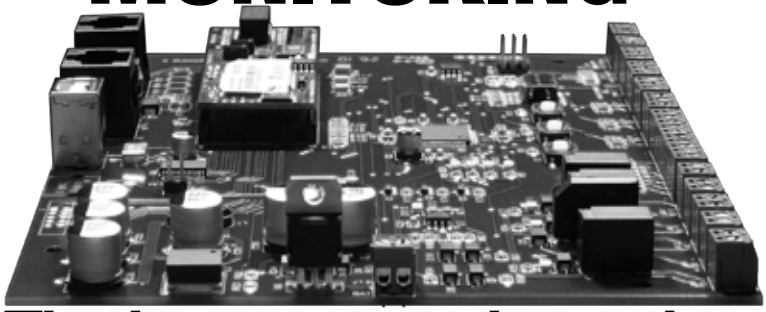

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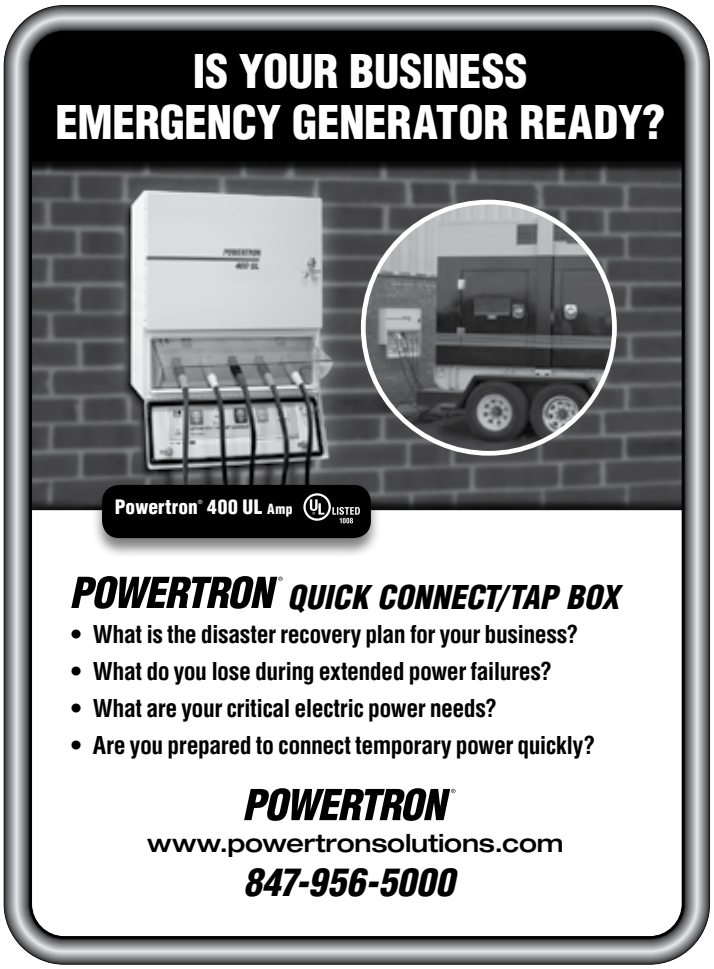
"In cooperation with a sister company in Augsburg, Germany, we will be bringing in new natural-gas-fueled CHP (combined heat and power) products to North America in the next couple of years," says Prosser. MTU Onsite Energy CHP systems have these advantages:

- Efficient: Up to 40 percent reduction in primary energy usage compared to conventional power plants
- Economical: Low total cost over the lifetime of the system
- Eco-friendly: Low emissions—up to 50 percent less CO2 produced than conventional power plants
- Local energy production: No transmission losses
- Independent: Supply guarantee if local grids fail or are unreliable

"Another sister company in Germany has developed efficient fuel cell technology that we will be looking to integrate into our North American product offerings in the future. Their current product is a 345 kW unit that can run on natural gas, biogas, sewage gas or methanol," he says.

Today's MTU engines used on MTU Onsite Energy's generator sets are setting the standard for the modern electronically controlled diesel engine. Employing leading-edge digital technology, these electronically controlled diesel engines deliver performance benefits such as quicker response to load changes, more stable frequency and faster load acceptance. In particular, generator sets powered by MTU engines are certified for an average 85 percent load factor over 24 hours, 15 percent higher than standard generator sets. This is primarily due to their larger cylinder displacement per unit of horsepower than comparable engines. These engines also have better control of engine operating parameters and employ third-generation high-pressure common rail fuel injection systems that reduce exhaust emissions, cut fuel consumption and quiet engine noise and vibration. All these factors lead to improved reliability and greater durability.

"The single most important factor in our business success is our technological expertise in complete power system integration," Prosser concludes. "That means integrating the engine, generator, switchgear and controls into the customer's complete power distribution system in a way that maximizes reliability, power quality and efficiency." ■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Joint U.S.-Mexico Wastewater Plant Doubles Standby Capacity

Generator set backs up new secondary treatment operation added to meet EPA standards and improve effluent quality

SAN YSIDRO, California — The South Bay International Wastewater Treatment plant is a joint effort between Mexico and the U.S. to treat sewage from Tijuana and eliminate environmental concerns in the Tijuana River Valley just south of San Diego. Built in the late 1990s, the plant is located on a 75-acre site in the U.S. just north of the sprawling city of Tijuana, Mexico. When the International Border and Water Commission (IBWC), the plant's operator, recently added secondary treatment to further improve the quality of the discharge water, it needed an additional 2,000 kW of emergency standby power.

A new EPA Tier 2-certified 2,000 kW standby generator set from MTU Onsite Energy provides backup power for the recently expanded secondary wastewater treatment operation at the South Bay Wastewater Treatment Plant in Ysidro, CA just across the border from Tijuana, Mexico.

The South Bay wastewater treatment plant has a capacity of 25 million gallons a day. Its original design consisted of advanced primary treatment, which involved the addition of chemicals to the influent to promote removal of solids and dissolved organic compounds through settling. The treated water was then discharged via a 4.5-mile pipe extended out into the Pacific Ocean near the Mexico-California border. When the quality of the advanced primary treated discharge was found not to meet current environmental standards set by the EPA, the IBWC decided to add secondary treatment to the plant.

Secondary treatment improves quality of effluent discharged in ocean

Secondary treatment involves bacteria-activated sludge combined with aeration and additional settling. Encouraged by the large supply of oxygen bubbled through the sewage, aerobic bacteria consume the remaining organic compounds in the effluent. The sludge is then removed by additional settling and recycled to reuse the bacteria. After secondary treatment, water quality is much improved and meets EPA standards. Adding secondary treatment has greatly increased the plant's electrical load. The large aeration pumps and activated sludge system necessitated the addition of another 2,000 kW of emergency standby power.

"The plant hasn't been expanded in terms of overall capacity. It was originally designed for both advanced primary treatment and secondary treatment, but the secondary facilities were not immediately funded," says Steve Smullen, area operations manager, IBWC. "Recently, we got the funding, and now we've added a biological system, aeration and settling facilities to meet our EPA permit requirements. As a consequence of completing the secondary treatment, we also added quite a bit of additional electrical load to the plant to operate three 700 hp aeration blowers and related equipment. In case of a utility outage, we needed the additional standby generation to handle those larger loads," says Smullen.

New generator set package had to match old

"The treatment plant wanted the new power system installation to physically match that of an existing 2,000 kW generator (from a different manufacturer) that was installed during the original construction in the late '90s," says Tim Oergel of W.W. Williams, the local distributor for MTU Onsite Energy which supplied the new generator. "Getting the two generators to fit into identical packages was a challenge," he continues.

One design issue was that the new unit was 16 years newer than its companion. The new unit is a 2,000 kW Tier 2 generator set operating at 12.47 kV housed in a specially designed ISO container. This newer generator set is EPA certified to meet Tier 2 emissions regulations, whereas the existing generator set was manufactured at the beginning of Tier requirements and was compliant with, but not EPA certified to, the less stringent Tier 1 standards.

In addition to not having modern emissions control hardware, the existing generator set did not have an electronic governor or other electronic controls to help it synchronize with the new, more advanced generator set. To get the two generator sets to communicate with each other, the existing generator's governor was replaced, along with many other controls. The overhaul also included new paralleling switchgear, automatic transfer switches and various communications interfaces.

Unique considerations

"While the EPA-certified Tier 2 generator set is more fuel efficient and has significantly cleaner exhaust, it also has higher heat rejection that requires a specialized radiator," says Oergel. "Because we had to match the size of the original 40-foot ISO container, we had to be creative in designing a radiator with higher heat rejection to fit in the same-sized package as the original generator set. The solution was a specially designed radiator that was direct-driven through a planetary gear off the engine's crank shaft. With a larger surface area and greater airflow, the special radiator was able to fit inside the container and still provide the necessary cooling."

The physical installation of the containers is unique as well. Each containerized generator set is mounted on a concrete pad outside of the plant's main building. Because the plant is located in earthquake country, both generator set containers are supported by a seismically reinforced mezzanine structure consisting of I-beams connected in crisscross patterns. These structures support the weight of the containers and are bolted to the concrete pad to prevent damage to the generators in the event of an earthquake.

"Part of the reason we won the project was higher average load-factor capabilities," says Oergel. The new generator set is capable of supplying an average 85 percent load factor over 24 hours, compared with the existing unit's industry-standard 70 percent average load-factor capability. "That means during extended outages, the new generator set can supply 15 percent more kilowatts," he says.

Pre-commissioning, installation, final commissioning and load-bank testing were completed in the summer of 2010 to make sure that both units could carry the full plant's load while operating in parallel. A pre-commissioning or "witness test" of the MTU Onsite Energy generator set was conducted while the unit was still at the MTU distributor's yard in Phoenix and was observed by engineers representing the customer. There, the single generator set was run at full power using a 2 MW load bank.

For final commissioning at the customer site, a 4 MW load bank was brought in to test both generator sets running in parallel. Over the course of two hours, the generators were loaded incrementally, from 25 percent, to 50 percent, to 75 percent and then 100 percent load. While the MTU Onsite Energy generator set is rated for 100 percent block loading, Oergel says it is important to verify how the engines and generators respond to changes in load. The resulting parameters are mapped out in test reports that track voltage and frequency stability, and response to transients.

"Getting the different units to operate together was a challenge," says Oergel. "There were many sequence-of-operation changes that were needed to make sure both units functioned properly and could carry the load." The majority of sequence-of-operation tests were conducted by the paralleling switchgear supplier. The tests are an orchestration of all of the relays, controls and breakers that need to either open or close at certain points in the startup. It is important to verify that, in the event of an overload, the nearest breaker opens and prevents the overload from traveling all the way back to the main breaker.

"What we do is coordinate this sequence of operations for starting engine one, starting engine two, paralleling them and closing onto the bus and closing the breakers. All those operations need to be timed appropriately so that all the critical loads are recognized and carried instantly," says Oergel. "Now the South Bay plant is assured of having emergency power for all its critical loads in the event of a utility outage. That will allow this joint U.S.-Mexico wastewater treatment plant to continue to fulfill its mission of protecting the environment throughout the Tijuana River Valley and Southern California." ■

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EGSA Certified Technicians Preferred.

Generator Field Technician

PM Technologies, LLC has several immediate openings for Generator Technicians. We are located and operate in Michigan, Ohio and Northern Indiana. High School diploma or equivalent a must. Military experience a plus. Must be able to troubleshoot and repair the engine (diesel and gaseous) as well as the generator end. Customer interaction will be required on a daily basis. We need highly motivated, self sufficient people to assist in growing our expansion efforts at new branch locations. Benefits include company vehicle, 401k, health, dental and vision coverage's as well as paid bonuses for new account procurement. Fax resumes to 248.374.6408 or email to *dpopp@pmtech.org* **EGSA Certified Technicians Preferred.**

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Join the industry's fastest growing Light Tower, Generator, Water Trailer and Diesel-powered Pump Company. Our team is dedicated to providing the best solutions, customer service and technical support in the industry.
A working knowledge of mechanical design and electronics required; strong communication and trouble shooting skills preferred. Compensation and benefit package include: base salary + commission, medical, dental, vision, 401K and vehicle. Extensive travel is required.
Western Region – WA, OR, CA, NV, AZ, CO, UT
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Please send resume to ***jdavids@m-p-llc.com*** or
Attn: Julie Davids 215 Power Dr. Berlin, WI 54923
www.m-p-llc.com

Generator Field Technicians

TAW® is searching for experienced Generator Field Technicians in Orlando & Tampa, FL. Duties include: inspections, repairs, services and start-up of generators & ATS. Troubleshoot generators & automatic transfer switches. Diesel engine experience desired. E-mail resume to *ellen.donegan@tawinc.com*. Fax (813) 217-8076.AA/EOE. DFWP. *www.tawinc.com* **EGSA Certified Technicians Preferred.**

Industrial Switchgear Product Specialists

TAW® is looking for Ind. Switchgear Product Specialists for our Power & Distribution & Switchgear Div at our Custom Equipment facility in Riverview, FL. Will increase sales of switchgear & power equipment centers for low & medium voltage product lines with new & existing accounts. Will target customers for utilities; OEM's & municipalities to drive volume. Prior exp either selling, or application engineering of, industrial switchgear systems. Prior experience working for a manufacture, or re-seller of industrial switchgear – medium or low voltage in either an engineering; applications; or sales role. TAW® offers a competitive salary and commission as well as benefits. Candidates can be based, & will cover the following markets: Houston, Atlanta, Charlotte & Birmingham. Candidates can e-mail resumes to *ellen.donegan@tawinc.com*. or fax resumes to (813) 217-8076;. AA/EOE. DFWP. *www.tawinc.com*

Emergency Generator Sales

We are growing! Genset Services, Inc. the top tier industrial distributor for Generac generators in South Florida has an opening for an outside salesperson. Candidates should have a minimum of 6yrs sales experience in emergency power equipment or in a similar or related field. We offer a competitive compensation package that includes a base salary plus commissions, car allowance, health insurance, vacation and investment plan. Please forward your resume with cover letter and salary requirements to ***matt@gensetservices.com***

Generator Service Technicians

We are growing! Genset Services, Inc. is seeking qualified generator technicians for our Central and South Florida branches. Working knowledge of Diesel and Gaseous engine driven generator sets is required including service/maintenance, troubleshooting/repair of AC and DC electrical and control systems as well as strong computer skills. Ideal candidate will have neat appearance and clean driving record. We offer a competitive compensation package including company vehicle, health insurance, vacation and an investment plan. Please forward your resume with cover letter and salary requirements to *keith@gensetservices.com*
EGSA Certified Technicians Preferred.

Generator Technicians

Due to our continued growth, Central Power Systems & Services, Inc. has immediate openings for Generator Technicians at several of our Missouri, Kansas and Oklahoma facilities. We offer a strong base wage and a full benefit package (including FREE MEDICAL & LIFE insurance) and PAID RELOCATION depending on skill set. Fax a cover letter, salary requirements and your resume to 816-781-4518 or e-mail it to *jobs@cpower.com* EOE
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Generator Service Technician

Buckeye Power Sales, the oldest signed Kohler Distributor, seeks service technicians to perform PM's, start-up, & warranty work on power generators in Ohio and Indiana. Must have knowledge of gas & diesel engines, A/C D/C circuits, 1+ years experience with generator equipment, able to troubleshoot from wiring schematics, knowledge of NFPA 70E; knowledge of Kohler a plus. Must have clean driving record, drug screen, and background. Travel to customer sites; able to drive manual transmission a plus. Company vehicle provided. Competitive pay & full benefits package. Apply: *resumes@buckeyepowersales.com*. No phone calls or agencies please. E/O/E Drug-Free Workplace **EGSA Certified Technicians Preferred.**

Power Generation Equipment Sales Person

Kentech Power is looking for a full-time Power Generation Equipment Sales Person. Potential candidates should possess previous sales experience, preferably in the Power Generation Equipment Field. They must be highly motivated and customer focused. They must be willing to work in the San Antonio / Austin area. Interested candidates should send their resume through our website at *www.kenterchpower.com* or by fax to 210-946-2473.

Western Branch Diesel, Inc.

This position is for Territory Manager in Northern Va. area. Experienced candidate in the Power Generation Industry with sales or sales engineering background to sell and manage large accounts. Call for additional information. Please send resume to *salesposition@wbdiesel.com* or 12011 Balls Ford Road Manassas, VA 20109.

Experienced Power Generation Technicians Wanted!

Penn Power Systems, leaders in the power generation business, is actively seeking experienced field service technicians for open positions in our upstate New York and Pennsylvania locations. Candidates should be familiar with natural gas and diesel prime movers with industry experience and knowledge of systems and controls. Penn Power Systems and its divisions offer industry competitive salaries, medical, 401(k), and vacation benefits. All interested parties should send resumes and work related history to *jobs@pennpowersystems.com* or call 1-877-736-4473. **We Proudly Employ EGSA Certified Generator Technicians.** EOE M/F/D/V

Sales

CJ's Sales & Service has been in the industry for 40 years and is a distributor for MTU Onsite Energy. Looking for a highly motivated, knowledgeable, and experienced salesman for equipment, service, and rentals. Clean MVR, drug test necessary. Competitive pay, commission, vacation, health, dental. Email resumes: *jobs@cjspower.com* fax: 352-732-0606

Generator Field Technician-Experienced

Full-time experienced generator field technician opening in Ft. Lauderdale, FL. Requires advanced knowledge of standby generator systems with minimum 5 years experience. Working knowledge of 12 & 24 VDC controls. Company offers a full comprehensive benefits package. Competitive wage, company vehicle, laptop and cell phone for qualified candidates. Send resumes to *careers@acfpower.com* or fax to HR at 813-621-6980. **EGSA Certified Technicians Preferred.**

Pump Product Manager

Join the industry's fastest growing Light Tower, Generator, Water Trailer and Diesel-powered Pump Company. Our team is dedicated to providing the best solutions, customer service and technical support in the industry.

This position is responsible for the development, planning and marketing of new product and product enhancements for Magnum's Pump line. This will involve managing all aspects of the product lifecycle, defining product vision, gathering and prioritizing product and customer requirements. This position will ensure pump performance is in-line with customer expectations, revenue goals and overall company strategy and objectives. Complete benefit package offered.

Please send resume to *jdavids@m-p-llc.com* or Attn: Julie Davids 215 Power Dr. Berlin, WI 54923 *www.m-p-llc.com*

Generator Service Technicians

CJ's Power Systems in Florida, a distributor for MTU Onsite Energy is currently seeking qualified technicians throughout the state. Job includes: performing planned maintenance, diagnostics, repairs, and startups of generators. Knowledgeable, computer skills, clean driving record a must. Excellent pay, medical, and other benefits. Email resumes: *jobs@cjspower.com*; fax to 352-732-0606 **EGSA Certified Technicians Preferred.**

Generator Set Sales/Service

Experienced sales/service engineer needed by southern California company to sell engine generator sets. Please respond to *J.Kellough@EGSA.org* (Reference PLND06JB-1).

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Wärtsilä appoints Björn Rosengren President and CEO

Wärtsilä's Board of Directors has appointed Mr. Björn Rosengren M.Sc. (Tech.), as the new President and CEO of Wärtsilä Corporation. He will assume the position on September 1, 2011, succeeding Mr. Ole Johansson, who will retire.

Currently Mr. Rosengren works as Senior Executive Vice President Atlas Copco AB and as Business Area President for Atlas Copco Construction and Mining Technique, and is based in Shanghai, China.

Mr. Rosengren has held several management positions in the Swedish industrial group Atlas Copco since 1998. Prior to that, he led the hydraulic company Nordhydraulic, Nordwin AB, and worked for the welding company Esab Group.

"Björn Rosengren has a strong industrial background, with solid results of continuous growth and increasing profitability in the global business environment", says Antti Lagerroos, Chairman of Wärtsilä's Board of Directors. "Björn has a charismatic and open management style, and the Board is convinced that Wärtsilä is well positioned to pursue its strategy of profitable growth under his leadership."

"I am proud to lead Wärtsilä, a world leader in sustainable power solutions and services for the marine and energy markets. Everywhere, Wärtsilä has a strong reputation for high quality and leading technology in power generation," says Björn Rosengren. "I look forward to further developing the business together with all of its employees."■

MIRATECH Announces New Hires

MIRATECH Corporation has announced the hiring of several key staff members to work at its Tulsa headquarters.

Gary D. Keefe has joined MIRATECH as marketing director. "Gary's broad experience in the industrial emissions control industry, along with his engineering background, technical expertise and knowledge of the needs and concerns of our customers, will make him a valuable member of the MIRATECH team – enhancing our communications with customers and building on our tradition of excellence in customer-first service," said MIRATECH Chief Executive Officer Bill Clary. Prior to joining MIRATECH, Keefe was manager of reciprocating engine products at EmeraChem in Knoxville, Tenn. Keefe majored in mechanical engineering and marketing at Rider University of Lawrenceville, N.J.

Don Riker has been appointed MIRATECH Vice President of Business Services and will oversee human resources, accounting and Management Information Systems. Riker is a Certified Public Accountant and served as Vice President of Finance, Administration and Information Technology at Pyramid Real Estate Services before joining MIRATECH. He received the Bachelor's degree in Business Administration / Accounting from the University of Oklahoma, completed the Mergers and Acquisitions executive program at Southern Methodist University and was certified as a SAP Consultant / Finance and Cost Accounting Systems by the SAP Academy.

Lance Waltrip has joined MIRATECH as Product Design Engineer, focusing on product design and custom engineering to meet specific customer needs. "Lance brings great design experience to MIRATECH. He will become a very influential member in our department in the upcoming years as we advance our product offerings in the marketplace," said Adam Merillat, MIRATECH Product Design Engineering Supervisor. Prior to joining MIRATECH, Waltrip was the lead staff engineer at Flowserve in Tulsa. Waltrip holds the Bachelor of Science degree in mechanical engineering from the University of Oklahoma.

Carlos Otin has relocated to Tulsa from Cambridge, Mass., to serve as a MIRATECH Field Service Technician, providing technical field service, new equipment commissioning support and customer training for all MIRATECH product lines. Prior to joining MIRATECH, Otin worked as a software tester for Vlingo Corporation in Cambridge, Mass. and as a Technical Engineer for Siemens, S.A. in Spain, where he gained a strong background in automation / control and communications systems. Otin holds the Bachelor of Engineering degree from Alcala de Henares University, Madrid, Spain, a Certificate in Computer Science from Quincy College in Quincy, Mass. and technical certificates from several institutions in Spain.

Bruce Billman has joined MIRATECH as a Service Technician. His main duties include commissioning new selective catalytic reduction (SCR) systems and providing technical service for all MIRATECH products. Prior to joining MIRATECH, Billman was a service technician in the South Florida area for JLG Industries. Billman is a U.S. Air Force veteran and has completed coursework in electronic engineering and robotics.

MIRATECH Corporation is a Tulsa, Oklahoma-based provider of environmentally-sound emission solutions for users of industrial engines throughout the Western Hemisphere. ■

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Genrep Ltd/Ltée Announces Move and New Hires

The Genrep Ltd/Ltée Toronto location has moved from 264 Watline to 121 Watline Avenue. This new facility is 37,000 sq. ft. and has a 3.2 acre fenced in lot. "The move was necessary to accommodate our business growth and continue providing our customers with the high quality of service they expect" commented David Pali, Director of Operations & Marketing. "It's very convenient moving 2 blocks away and it's also very rare to find this much land in the city!". Genrep will use this facility as the main distribution warehouse for its 5 product lines: Seneca Power Generation, FPT Engines, Mitsubishi Engines, Doosan Engines, and JD OEM Engines.

Don Poyntz and Rick Frise have joined the Genrep TEAM!!

As a Power Products Specialist, Don Poyntz will be responsible for promoting Genrep product and service offerings in Ontario North of Barrie. Jerry Curtis, Manager of the Toronto Branch, says "Don is a welcome and necessary addition to our sales team. We've seen the activity in this territory increase and feel it is time to dedicate a full time representative to better serve the needs of our growing customer base. We look forward to expanding our business in Northern Ontario and building solid relationships with our customers."

As the Manager of Rental Solutions, Rick will be responsible for the development of the rental business in the Greater Toronto Area and surrounding areas. Jerry Curtis, Manager of the Toronto Branch, says "the timing couldn't be better; we have a new 37,000 sq. ft. facility situated on 3.2 acres in the heart of Mississauga which will be a key component in expanding our rental fleet. That, coupled with Rick's 10+ years and stellar reputation in the business, is going to make 2011 a very exciting year." ■

Foley, Inc. Becomes Mirenco Dealer

Whayne Supply Company announced that Foley, Incorporated has become the Mirenco Dealer for New Jersey, USA. This exciting opportunity provides Foley, Inc. with the exclusive distribution rights to provide Mirenco exhaust gas testing and fuel management services in their territory. Whayne Supply Company, the national distributor for Mirenco products & diesel combustion testing, is assisting Cat Dealers to provide Mirenco services in their respective territories.

"It is an exciting time to have Foley, Inc. join Mirenco's dealer network. Increased fuel costs and emission regulations have placed many operations in a tight spot. Foley, Inc. is now in a position to provide much needed assistance to it's customers with Mirenco's fuel and emissions services." Dwayne Fosseen, CEO of Mirenco, Inc. stated.

Mirenco is an Iowa based company that developed an exhaust gas testing procedure to evaluate diesel engine combustion efficiency. After diesel exhaust gases and particulate are evaluated, Mirenco analyzes the results and calculates the amount of fuel in gallons per year exiting the exhaust as unburned diesel fuel. The evaluation process measures the same exhaust gases and diesel particulate that the EPA (Environmental Protection Agency) now measure for meeting state and national emission regulations. For more information, visit *www.foleyinc.com* ■

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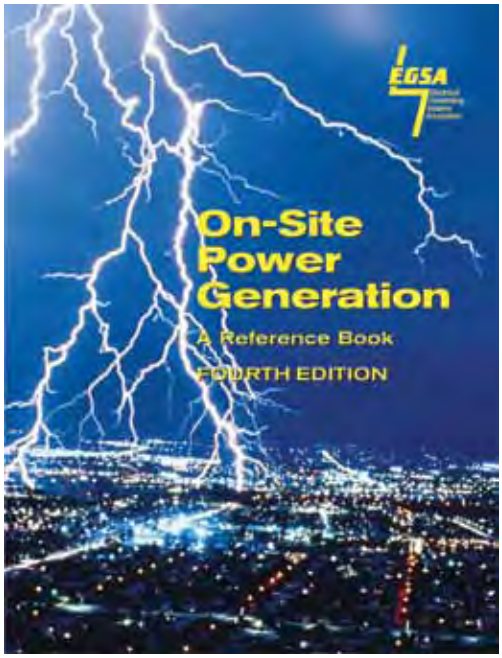

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